COMBAT STRESS AND ITS IMPACTS FOR FIGHTER SQUADRON
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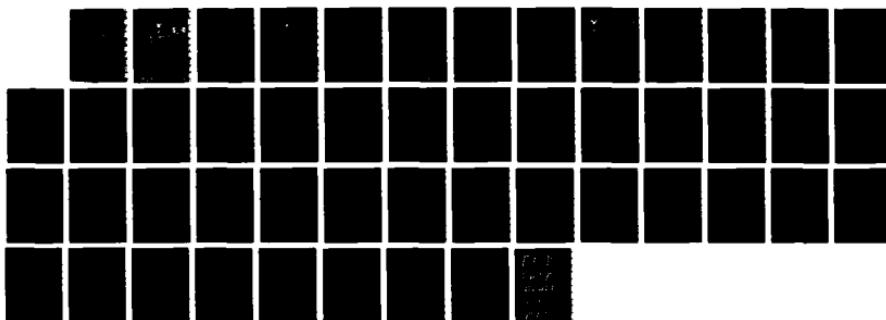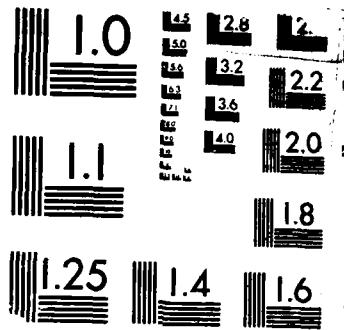
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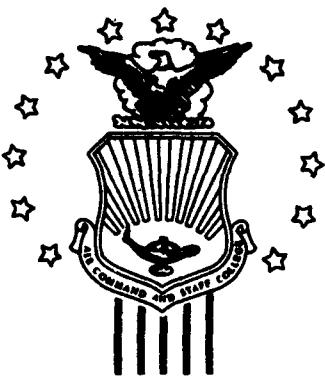
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MAJOR MICHAEL J. FOLEY REPORT#88-0940
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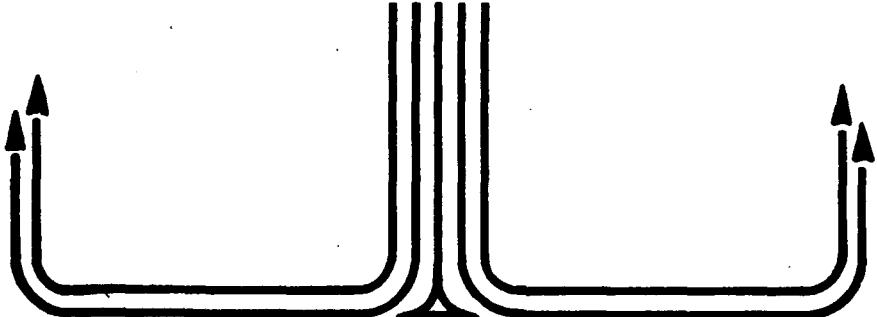
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The fighter squadron commander's job in peace is to insure his pilots are prepared for combat. In war, his job is to keep his men flying effectively for as long as possible. Combat stress can undermine the effectiveness of any number of his pilots. This paper is intended to inform squadron commanders about combat stress and ways to minimize its negative effects on mission accomplishment. It begins with a look at the concept of combat stress and the current emphasis within military circles. The paper then describes historical symptoms, factors, and potential impacts prior to assessing the likelihood for combat stress among fighter pilots in the modern battle arena. Finally, it outlines preventive measures which the fighter squadron commander can take to minimize the level of combat stress in his unit.

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PREFACE

This paper is written to inform the fighter squadron commander about combat stress and describe ways to minimize its adverse effects on his pilots. It is a subject which receives little publicity in peace, but can become a destabilizing effect on mission performance in battle. In past wars, ground and air commanders often had to relearn lessons from previous conflicts. This paper is an attempt to give commanders a head start in preparing for the problem of combat stress.

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ABOUT THE AUTHOR

Major Michael J. Foley graduated from the University of Detroit in 1973 with a bachelor's degree in mathematics and received his commission through Air Force ROTC. He completed navigator training in 1974 and served as a Weapons Systems Officer in the F-4E in Korea and in the Netherlands. He later transitioned to the F-111F for a tour in the United Kingdom. He completed a master's degree in operations research at the Air Force Institute of Technology prior to his assignment to Headquarters Tactical Air Command as an air operations analyst. He holds a master's degree in counseling from Ball State University, Indiana.

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EXECUTIVE SUMMARY

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REPORT NUMBER 88-0940

AUTHOR(S) MAJOR MICHAEL J. FOLEY

TITLE COMBAT STRESS AND ITS IMPACTS FOR FIGHTER SQUADRON COMMANDERS

The purpose of this paper is to assess the likely effects of combat stress on fighter pilots and recommend ways in which the fighter squadron commander can minimize its adverse impacts on mission accomplishment.

The fighter squadron commander's job is to insure his men are able to fly and fight and win in battle. In order to do this, he must understand the human aspect--the capabilities and frailties of his warriors in combat. The specific "enemy" is the combat stress which can build to a point that the pilot is no longer able to effectively perform his mission. The commander needs to understand the concept of combat stress, recognize its warning signs, and take preventive measures to delay or deny its debilitating effect on his pilots.

Over the years, the concept of combat stress has received many labels, but it is basically the stress brought on by the conflict of man's natural survival instinct in the unnatural

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environment of combat. Every man will experience stress to
varying degrees. The point at which stress becomes debilitating
will also vary for each man. The key is for the squadron
commander to attempt to prevent stress from reaching that
critical level at which a pilot can no longer effectively perform
his mission.

The current Air Force emphasis placed on understanding combat
stress is rebounding from near minimal. However, the training of
squadron leaders on the subject is near nonexistent. Commanders
are not receiving information on the lessons learned from past
wars in terms of the impacts, symptoms, and contributing factors
of combat stress.

There is certainly reason to instruct flying personnel about
combat stress. The modern battlefield, its array of lethal
threats, and the likely fast-paced tempo with its fatiguing
effects will challenge the pilot's physical and mental stamina.
In addition, the home airbase will probably not provide the
relatively safe haven which US pilots enjoyed in past wars. Time
spent at a home airfield under attack or recovering from an
attack may in fact complicate, rather than compensate for, the
rigors and stresses of the combat mission.

The key tactic for the squadron commander in combatting the
stresses of combat is prevention rather than waiting to treat a
pilot who is no longer effective. Important preventive
considerations include good leadership, realistic training, unit
cohesion, fear management, tour length policy, recognition of
symptoms, and rest. In cases where prevention fails, treatment
in the base combat stress facility may be beneficial. Failing
this, the squadron commander then must decide what administrative
action is appropriate for the individual. Throughout this
process, it's important for the commander to work closely with
his flight surgeon toward the common goal of keeping his pilots
effectively flying as long as possible.

Combat stress has occurred in past wars and it will occur in
the next. The fighter pilot will not be immune. The squadron
commander can take preventive actions which can reduce stress and
minimize its negative effects on successful mission
accomplishment.

Chapter One

INTRODUCTION

The intent of this study is to get current and prospective
fighter squadron commanders to think about combat stress. The
study includes a look at the current emphasis on combat stress,
its potential impacts, likely symptoms, and underlying factors.
It considers the likelihood of combat stress in the modern air
combat and airbase environments and investigates preventive
measures to counter combat stress. The goal is to help
commanders keep their pilots effectively performing their
missions for as long as possible in combat.

The job of the squadron commander is to insure his men are
ready to fly and fight and win. The peacetime training of his
pilots and the evaluation of that preparation typically centers
on quantitative aspects such as bombing accuracy, number of
successful intercepts, number of successful air combat training
sorties, number of night low level missions, etc. Preparation to
deal with combat stress among pilots falls into the grey
subjective realm that is tough to evaluate and easy to disregard.
The fact that it has been a long time since Air Force fighter
pilots have been involved in combat of extended duration makes it
all the more easy to put the subject of combat stress on a back
burner. The subjective nature and the limited recent combat
experience have apparently resulted in the low priority given to
understanding and preparing for combat stress, but they have not
altered its reality. Combat stress will occur among pilots in
war. The key is to keep the levels of the stress from becoming
debilitating. The ability of the pilots to continue to
effectively perform mission after mission, day after day in
combat, will depend to a great extent on the preventive actions
the squadron commander takes.

During peace, the time the squadron commander spends
understanding combat stress and associated preventive measures
can pay big dividends in terms of maintaining his pilots'
effectiveness in war.

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Chapter Two

BACKGROUND

DEFINITION

"Combat Stress" is but one of many terms which have been used to describe the body's reaction to the "...conflict between a sense of duty and a wish to survive" (18:105). During the American Civil War, "nostalgia" was identified as an overwhelming longing for home (13:140). In World War I, "shell shock" was considered to be a neurological abnormality that resulted from the concussions of bursting artillery shells. When medical authorities subsequently found no neurological basis for the symptoms of confusion, deafness, blindness, or paralysis, they substituted other terms (29:20-22). Over the years the names have included "war neurosis," "combat fatigue," "combat reaction," "battle stress reaction," "combat exhaustion," "transient adjustment reaction," "battle shock," "battle fatigue," and "operational fatigue" (29:12; 5:99-100; 27:3; 30:12). Regardless of the specific term, the condition is generally recognized as one

> ...experienced by every individual in combat. It varies
> in severity from mild cases in which the soldier senses
> fear with no evidence of anxiety to severe cases in which
> the soldier can no longer relate to the environment,
> cannot function on the job, compromises his or her own
> safety and the safety of others... (32:7).

What then is the difference between a person who is suffering a normal reaction to the stresses of combat and the person who is a casualty of combat stress? The difference is in the severity of the reaction as "...the stress casualty goes beyond the normal intensity of reaction and becomes combat ineffective and unable to perform his required duties in battle" (29:17,18). Major General F.W. Richardson observed that a tough but necessary job for the commander is to "...distinguish between men who are simply afraid and those who are beginning to find fear uncontrollable" (25:27). The former merely needs encouragement, but the latter typically requires treatment.

"Combat fatigue is a distinctly real disorder and is of the greatest practical concern to a combat unit commander. Any of his men are susceptible to it. The airman suffering from its effects may be of such reduced efficiency and so emotionally disturbed as to constitute a hazard for himself and his fellow fliers..." (15:26).

CURRENT EMPHASIS

The US Army as well as armies of other nations are placing a great deal of emphasis on ways to minimize the adverse impact of combat stress on operations. US Air Force agencies have published relatively little information on the subject but are taking a few positive steps forward.

Switzerland and Isreal are two nations taking positive steps to understand and reduce the negative effects of combat stress. The Swiss now conduct training on combat stress for its soldiers to include information on symptoms and treatments (20:623). In their 1973 war, the Isreali Defense Force (IDF) lacked effective methods to compensate for combat stress and were stunned by the number of combat stress casualties. For every 100 IDF soldiers killed or wounded, another 30 were lost to combat stress. In addition, their methods for treating the combat stress casualties were not conducive for the return of these casualties to combat (27:2). Therefore, after the 1973 war, the IDF began to adopt measures used by the US Army. As a result, in the 1982 war in Lebanon, the IDF reduced the incidence of combat stress to 23 soldiers for each 100 killed or wounded, and 60 percent of these casualties returned to combat within 72 hours (8:29).

During this same time period, motivated by the IDF problems in 1973, the US Army began to look hard again at combat stress principles it had learned in previous wars. The Army put a great deal of emphasis on instruction of officers and enlisted about likely combat stress in AirLand Battle operations. Army Field Manual 26-2, Management of Stress in Army Operations, emphasizes that combat stress is a major concern, describes its causes, symptoms, and ways to prevent and combat it, and urges that stress must be managed and "overcome" in order to maintain combat effectiveness. Field Manual 22-9, Soldiers Performance in Continuous Operations, recommends methods to deal with the fatigue and stress that are likely to occur in continuous (24 hour) operations. Other related publications include Field Circular 22-102, Soldier Team Development, and Field Manual 8-230, Medical Specialist (32:7-8). In addition to these publications, the Army began in 1981 to conduct workshops on combat stress. Topics have included the needs of mental health care providers in key Army combat units, the training responsibilities and methods of these providers, the impact of unit cohesion on individual and unit combat readiness, and combat

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stress lessons learned from '82 Lebanon, the Falklands War, the Grenada operation, Central American operations, and exercises at the National Training Center (26:1-6).

While the Army has made great strides to learn about combat stress and to train its soldiers, Air Force emphasis and work in this area is relatively limited. The Air Force does provide 2 to 5 hours of classroom instruction to flight surgeons on the topic of combat stress. A major Air Force plan is to have a combat stress facility located at each airbase (37:--). A current problem is lack of information on combat stress getting to the operational squadrons. One significant Air Force work, U.S. Air Force Combat Psychiatry, a 1986 report by David R. Jones, MD, of the USAF School of Aerospace Medicine, acknowledges that the Air Force fails to adequately address combat stress when training officers and noncommissioned officers (25:1). Many subjective elements such as courage, uncertainty, anxiety, doubt, and faith exist in battle. Dr Jones commented that while an understanding of these "elements of battle" is essential for commanders, they are "...seldom [discussed] in the peacetime US Air Force, and then heard only faintly" (25:26). There is, for example, no formal training on combat stress considerations in Tactical Air Command's Squadron Commanders Course, Squadron Commanders Conference, nor Fighter Symposium (36:--). The Air Force needs to place greater emphasis informing commanders about combat stress as "...any commander who is to achieve maximum effectiveness from his combat airmen must understand the problems of emotional stress which they encounter and do something about them" (15:34).

Over the years combat stress has received many names and has received varying degrees of interest. Typically the interest has increased during combat and then waned in peace. The current US Air Force interest in understanding combat stress is rebounding from near minimal. The understanding can increase by reviewing some impacts, symptoms and typical factors attributed to combat stress.

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Chapter Three

HISTORICAL ASPECTS

IMPACTS

There are obvious differences in the attitudes, fears, strengths, and concerns of a pilot as he transitions through combat from being a "new guy" to that of an "old head" to finally being "short" as his time in combat is due to end. In 1948, Lieutenant Colonel Herman A. Laubrich, a student at the Air Command and Staff School, summarized the conclusions of medical personnel in WW II. At the outset of combat, the typical pilot's reaction was a "cocky false bravado" as a defense reaction to impending combat. This was often accompanied or followed by a sense of hopelessness, a sense that survival in combat was unlikely. Later, the individuals settled down to be "...effective, cautious, fighting men, quiet and cool on the ground and in the air" (15:29). Finally, Col Laubrich related that the pilot who perceived the end of his tour or end of hostilities drawing near, was likely to develop "...restlessness, fatigue, and sometimes a fairly marked depression with loss of interest and efficiency" (15:29). In 1945, Lord Moran, a respected author on the subject of stress in battle, described the "seasons" of the combat pilot. In the "spring," he gains experience but is extremely vulnerable to being shot down. This could equate to that first 10 to 15 combat missions which even today are identified as a critical period for the pilot to survive and learn from. Moran then described the "summer" as the period in which the pilot is confident and knowledgeable. It is a period of "...initiative and dash, of skill and wise discrimination, of success and achievement [when] his vulnerability is now comparatively slight and his military worth at its zenith" (4:38). The length of this summer varies by individual and environment; it is not predictable. However, the subsequent "autumn" is marked by distressed anxiety. He noted that the pilot at this stage often spoke openly of impending calamity as "...death came to him in a hundred shapes" (4:35,38). An example of this was in Lieutenant Colonel Gene I. Basel's Pak Six, an account of his experiences as an F-105 pilot in Vietnam. He recalled that after completing 76 of 100 required missions,

The dreams had been coming too frequently. I had died four times in the last week. Obviously, I had a problem...Twenty-four more times, twenty-four more exposures, and I could go home. Twenty-four more small deaths. The self-hypnosis, the shark's teeth, the lucky coin; it had all run out. I was on my own. I had come to think I was immune, had a curious sort of ignorance that allowed me to escape fear. Seventy-six mission and I had used it all up...I thought about the people I had trained with, the sixteen. Seven were gone, not good odds (1:150-151).

Col Laubrich noted fear and anxiety were usually at their worst during periods of inactivity. The night before a mission could be terrifying as the pilot's visions of the next day's missions kept him awake. Another time of fearful anticipation was after the mission was planned and briefed while the pilot waited to takeoff. Enroute to enemy territory was another relatively inactive period which provided abundant time to imagine the enemy's fighters, AAA, and death. This tension was finally relieved by combat when the pilot was busy taking action to survive threats and attack his air or ground target (30:8). It was a sense that "...in shooting back at someone trying to kill you that you feel greatly relieved of fear" (22:48). Col Basel wrote,

...the enemy fired at us enthusiastically, and some of us were shot down. The rest of us became pretty excited, our minds and hearts racing. Being shot at is stimulating...the pilot often reached another, higher level of stimulation, one just short of coma. It's called "Hydraulic Lock," ...everthing locks up. Heroes are made from this, flying through a hail of enemy fire with total disregard for personal safety. They don't care (1:32).

Finally, Col Laubrich said for some, the return trip home and postmission were the worst times as the idle time permitted the mind to clearly reconstruct the air battle and the dangers encountered (30:8).

SYMPTOMS

The specific symptoms of combat stress vary. Again, the critical consideration is whether or not they are so severe as to keep a pilot from effectively performing his mission. A 1985 Army Health Services report noted common physical symptoms of combat stress include racing pulse, constipation or diarrhea, sweating, tremors, and nausea. The behavioral symptoms "...may extend from anxiety, exaggerated startle reaction, sleep disturbances, mild despondency...cognitive slowing...through

extremes of aggression, depression, or other functional
disorganization" (26:7). Dr Jones, among the Air Force's leading
authorities on combat stress, said classic early symptoms include

> ...gradual withdrawal from social contact, loss of sense
> of humor, lack of spontaneity, passivity leading to
> moroseness, the onset of multiple complaints of vague
> symptoms which hitherto have been ignored or even hidden
> from the flight surgeon to avoid grounding, and
> diminished energy and appetite. Later symptoms will most
> certainly include irritability; increased use of
> cigarettes, coffee, and alcohol (which obviously makes
> things worse); digestive disturbances; weight loss;
> insomnia; and the disturbances of sleep by bad dreams or
> frank nightmares. The flier may develop tics, frank
> tremors, or an increased startle reaction, and [without
> preventive action] other symptoms of anxiety, depression,
> and psychophysiological reactions... (25:16).

Examples of psychophysiologic complaints are headaches, stomach
disorders, and visual problems (25:6).

Symptoms of fatigue are important cues of impending problems.
The tired pilot may complain of not being as sharp and skillful
in the air but is uncertain as to the cause (4:38-39). The
typical fatigue symptoms include problems in focusing attention,
slowed response to instructions, and decreased short-term memory
and vigilance. Key here are the problems with vigilance, as
these are typically errors of omission rather than commission.
As a result, the pilot may fail to see obstructions in his flight
path or to respond to critical information (21:18).

Fatigue may surface alone, but it is more likely to accompany
other symptoms and complaints. The result is a decreased ability
to compensate for the fears of combat. Dr Jones wrote the pilot
may express his desire to fly but complains of some ailment which
stands in the way, an ailment which he'd normally fly with on
earlier missions. It can progress to the point he absolutely
dreads the idea of any more flying. As the situation progresses,
the flier's performance typically deteriorates, often to the
recognition of his fellow fliers. Dr Jones commented that the
squadron supervisors must look for the point in time when a
person's continued flying in combat poses a significant threat to
mission success, his fellow pilots, and himself (25:6,11).

FACTORS

Given the symptoms of fear and combat stress, it's important
to understand the important factors which can result in the
symptoms. Why is it that one person can tolerate what another
finds unbearable? It is a difficult question, but the

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"...complexity does not deter most people, professional and lay, from offering highly simplistic answers...They generate their own hypotheses and validate them to their own satisfaction..." (5:17-18).

The basic factor is fear, but it's important to note that fear is not cowardice. It is natural to be fearful of the dangers of combat because of man's basic instinct of self-preservation. In some cases fear seems out of proportion to the specific threat, but still it is not cowardice to be afraid (4:19). Man must struggle with many emotions as he attempts to do his job and also preserve his life in the unnatural environment of war.

The conflict results in stress and anxiety. While everyone reacts differently in the way they handle fear, each person has some maximum level of tolerance beyond which combat stress disorders can occur (33:32). Therefore, it's not just the maladjusted, but in fact the "normal" person who is saddled with combat fatigue when subjected to the emotional stress of self-preservation, duty, and the physical fatigue of combat (15:31).

Col Laubrich listed 18 factors as contributors to combat stress among pilots in WW II. These were: worry about loved ones, questionable necessity of war, insufficient leave time, too frequent missions, failing confidence in aircraft equipment, lack of sleep, poor recreational facilities, poor physical condition, poor food, lack of unit spirit, questionable leadership, terrifying experiences, frequent mission aborts, too much time to think about mission, lack of knowledge as to mission effectiveness, poor equipment, slow mail delivery, and lack of proper nourishment during long missions. He observed one common element among all fear is the fear of loss of something vital and very dear, such as one's life, esteem among friends, family, etc. (30:6,15). The important things valued could be summarized as persons, property, pursuits (work, leisure activities, family environment), institutions (service, country, church), and values (the hierarchy of importance placed on everything in life) (5:10-11).

It's worth a close look at what two respected authors on stress among airmen have said. Lieutenant Colonel Roy R. Grinker and Major John P. Spiegel performed a detailed study of combat stress on fliers in WW II and summarized the principle causes of such stress into four categories: (1) the threat of personal injury or death, (2) the injury or death of friends and associates, (3) the requirement to engage in a destructive activity, and (4) "...the sum effect of all the strains, both physical and emotional, on the soldier's motivation to remain in combat" (33:31-32).

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In dealing with the first of these, personal danger, Dr Jones has since noted that pilots often identify with the machines they fly as a powerful weapon and shield. "Freedom from anxiety in flight depended upon the fantasy of the aircraft as safe and upon a flier's identification with its strength and invulnerability" (25:14). This sense of invulnerability is beneficial for a time, but invariably "...it is suddenly brought home to him that he is not a spectator but a bit of the target, that if there are casualties he may be one of them" (4:29). Col Basel recalled thoughts about the Rolling Thunder bombing campaign, "I'm not sure anyone really adjusted; most of us just slipped into a sort of calm resignation to the inevitable. It didn't take but a few missions to realize, this was war, war of an intensity that guaranteed injury or death. The phrase was, 'Ain't no way.'" (1:114-115). Randy Cunningham, the Navy ace in Vietnam, commented that as a lieutenant waiting to launch on daily missions, the "...anxiety crept in to keep us company. I tried to hide its reality by telling myself that I was simply tired...Walking up on the flight deck I saw one guy so entrenched in anxiety he lost his breakfast over the side" (2:96).

The second point of Col Grinker and Maj Spiegel is that it is not only impending personal destruction which effects a man, but as Lord Moran noted, it is also concern for his fellow fliers and the jeopardy they all find themselves in (4:123). Colonel Robert J. Ursano, from the USAF School of Aerospace Medicine, claimed this is due to man's natural tendency to relate to social networks and unit cohesion. "Our attachments to individuals and groups have major effects on our ability to function as a biological organism..." (24:16). This group cohesion often results in some anxiety when a crewmember first joins a new unit. He is an outsider who doesn't yet benefit from that cohesion. Once the pilot is accepted into the group, he both feeds off of and contributes to the cohesion and morale of the unit (16:525,526). While this cohesion is beneficial, it can still be devastating when leaders and key friends are killed. Such was the effect on a pilot in Korea.

A 29 year-old married jet pilot flew 35 fighter-bomber missions during a period when his unit was undergoing significant casualties. Two of his close friends were lost within a brief period, one while flying a mission with him. Immediately after this he began to experience great anxiety in the form of insomnia, loss of weight, and anorexia. He became sullen, kept to himself, and decided to request administrative relief on the basis of fear of flying...He had previously been considered a superior pilot and a mature, intelligent person who was extremely popular in his squadron...He felt that any administrative action taken against him would be preferable to flying again (16:529).

It is important to recognize that the emotional stamina required while being shot at and witnessing friends being killed is not possessed equally by all (30:7).

The third point, concern about the morality and wisdom of a specific combat situation, can also add to stress. For example, Cunningham, buoyant by the excitement and sense of accomplishment in his first MIG kill, was suddenly overwhelmed with emotion over the human being he had just killed (2:48-49). Perceptions that leaders are incompetent can shake one's belief in an honorable and just cause. Belief that orders were contradictory or confusing "...significantly increased the stress level of soldiers" (33:26). Col Basel recorded sincere apprehension when there was questionable competence among leaders whose orders resulted in the deaths of his close and respected friends (1:94).

> Disillusionment began to seep into my young, wide-eyed mind. I hung tenaciously to my belief in a just and knowledgeable leadership of my country; but in all its wisdom, it was doing a better number on me--destroying my ability and will to fight--than any enemy could do. The enforced lack of sleep, the conflicting orders (kill the enemy, but only the ones we point out from 12 thousand miles away), the open mistrust of our motives and ability, and constant intent to intimidate and punish our own warriors: All this was straight from the enemy's bag of tricks" (1:94).

The final point, the exhaustion brought on by the accumulation of physical and emotional strains, was recounted in memoirs of WW II pilots in the Royal Air Force (RAF) and Luftwaffe. "One cannot help wondering whether highly talented pilots might have survived and continued to be effective if they had been given adequate rest at appropriate times" (9:87). Flying day after day on physically and emotionally demanding combat missions without adequate time to rest and recuperate permitted the stress to accumulate to the "point of emotional saturation leading to operational fatigue" (30:14). Medical literature of WW II indicated fatigue as the predominant cause of physical stress (33:34). Reflecting on Rolling Thunder operations, Col Basel noted, "I had 67 missions, 34 of them in Pak Six. I was bone tired, wiped out. I was desperate for a rest but couldn't get away. Uncle Sam needed a few more drops of blood before I could have a break" (1:144). A significant consequence of accumulated stress due to fatigue is when the pilot tries to sleep, he spends much of that time tossing and turning trying to get to sleep or disturbed by nightmares (25:6). The resulting sleep loss acts as a depressant and leaves him less sensitive for his demanding missions (21:18). The result is an obvious snowball effect as the pilot feels less and less able to maintain his "keen edge" for each day's flying which in turn further compounds the stress. Dr Jones remarked that cumulative

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stress from lack of adequate sleep combined with demanding
missions may, even after only a few days, "...render [the pilot]
ineffective at best and unsafe at worst" (25:9).

There are two other interesting thoughts on the roots of
men's fear in combat. In addition to fear of pain, death, or
injury, man fears that fear itself will incapacitate him such
that he will be unable to defend himself or be unable to perform
his mission. He also fears that others will notice his fear and
result in the loss of respect from his fellow warriors (19:9).

These historical aspects, the impacts, symptoms, and factors,
are interesting, but what is their potential in modern battle,
particularly for the modern day fighter pilot? It's important to
look at the environment in which he will operate.

Chapter Four

POTENTIAL IN MODERN BATTLE

The fighter pilot in the modern battle arena will be an active participant in the air, but will have a relatively passive role at his own airbase as he witnesses the effects of attacks against that airbase. It is worth evaluating both of these environments and their associated combat stress potential.

IN THE AIR

In considering the potential for combat stress for the modern day pilot, it's worthy to look at the USAF fighter pilot, the missions he will be flying, and the air arena he will find himself in.

Today's fighter pilot differs from his predecessors. Dr Jones wrote that the pilot today is better educated, has had more flying training, and is more likely to pursue a flying career in the Air Force than his predecessors in World War II and Korea (25:2). He noted that there were few college graduates among fliers in WW II, their training prior to combat was approximately 200 hours, and most had no intention of making the military a career. Further, he found that in Korea, many of the pilots were reservists who had been called back into service after serving in WW II. The war interrupted the lives and careers they began after WW II. In addition, Dr Jones recalled that the commitment of the nation was not as great for Korea as it was for WW II. As a result, he contended that many of the recalled fliers in Korea developed combat stress to the point that it interfered with their ability to perform their missions (25:2). In Vietnam, while most had college degrees and better flight training than pilots in WW II and Korea, they lacked many of the training programs available today such as Aggressor Training and Flag exercises (Red Flag and Green Flag). In addition, many Air Force fighter pilots in Vietnam were not career fighter pilots but bomber, tanker, or transport pilots who were crosstrained to fighters for a year's duty in Vietnam. Cunningham commented on the training received.

> When I went into combat I had over 200 simulated
> dogfights behind me. By way of comparison in DaNang I
> met an Air Force C-130 transport pilot who had

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transitioned to F-4s. He went through a total of 12 air combat training flights then he was going up North to fight Migs! I considered this situation an out-and-out crime (2:135).

While today's fighter pilot may be better educated, trained and mentally prepared than his predecessors, the types of missions are similar. As have pilots since WW II, today's pilot will fly interdiction missions, defensive and offensive counter air, close air support, and suppression of enemy air defenses. Some of the mission names have changed a bit, but they are similar to those flown in previous wars. The primary difference is that the pilot will be flying his technologically advanced machine into a far more complex and lethal threat environment than in the past.

The modern battlefield environment of today and the near future presents a complicated array of threats which challenge the pilot's ability to accomplish his mission and survive. Potential hazards include chemical, biological, and tactical nuclear weapons, and lasers which can blind a him or critically damage his aircraft. The threat will consist of large numbers of highly capable fighters able to launch weapons from beyond visual range. Enemy detection and command and control assets will sharply reduce his ability to surprise the enemy, and hostile electronic warfare capabilities will confuse and distract him. The workloads will be enormous. For example, the single-seat F-16 pilot flying a night mission in the European environment will ingress at extremely low altitude to minimize his exposure to the dense radar threats. He will then pop up to identify his target through his Forward Looking Infrared (FLIR) system, toss his laser-directed bombs against the target, and then insure laser guidance of those bombs while performing his recovery to egress the target area. He will do all this as he sorts through the buzz of threat warnings from his radar warning receiver and looks for missile launches or anti-aircraft artillery (AAA). Demanding mission it is! If he can safely egress and proceed through dense friendly air defense nets he will have an opportunity to do it all again in a few hours. Alternatively, an F-15 pilot, armed with his capable radar and heat missiles, confronts a qualitatively comparable but numerically superior adversary. Realizing friendly forces need an exchange ratio in excess of 1 to 1, he busily locates and identifies threats as he tries to fire his missiles before the enemy aircraft fires against him. Given the long range launch and leave missiles of the modern battlefield, it's feasible that both he and his adversary can kill each other simultaneously. He recognizes this is neither to his advantage nor to that of the numerically inferior friendly force. So he continues on at high closure rates and often high G loadings trying to assimilate a flood of data that's available to him as he attempts to kill without being killed.

As the pilot presses to accomplish his mission of killing air or ground targets, his immediate environment will be his "safe" cockpit of digital readouts and displays, gauges and controls. His contact with the war that goes on below him will be much cleaner and sometimes more impersonal than for the ground combatant, but he'll experience fear as he realizes he's the target for the enemy's wrath. Cunningham recalled,

> ...the electronic countermeasures (ECM) gear lit up the cockpit - the enemy was busy getting ready for something. 'SAMs!' My stomach contracted in honest-to-goodness fear, a reaction I would never lose at a SAM call. Sweat came pouring out...'Duke [Cunningham], SAM at three o'clock!'...I turned to starboard and the approaching pencil corrected toward us...It was locked onto us and tracking...Holding the fighter at zero G...I was counting on breaking at the last moment. We broke hard into the SAM and it couldn't turn the corner...The Gomers had failed to get us...(2:16).

In the process of avoiding or defeating threats, or in the process of attacking the enemy, at low altitude, the pilot is always aware that the ground is an unforgiving foe. Moran recognized this when he wrote that the pilot is also at war with nature. A single error can be fatal (4:104). Cunningham noted one such harrowing encounter with nature while engaging a Mig-21, "Our Phantom was upside down 200 feet off the deck doing 500 knots...Panic rose in my throat again as I thought we were going to crash" (2:43).

Finally, in addition to the stress of successfully accomplishing the mission without being killed or running into the ground, the modern fighter pilot, as those before him, will see friends shot down and die in the hostile air arena doing what he himself is trying to do. Col Basel related the loss of a close friend in an F-105, "Someone screamed 'Get out! Get out! Get out!' Gene Smith's wingman. Gene's airplane was a tumbling torch in the sky...The radio was full of the noises of war. The beeper sounding Gene's misfortune was a monotonous, mournful wail: an automatic signal activated upon ejection" (1:68-69). Cunningham told of the first time he saw a fellow airman die. It was during a mission he worked with an Air Force forward air controller,

> The Bronco erupted into flame as a 37mm made a direct hit! I sat there in utter horror...I had never watched an airplane shot down. Helplessness washed over me in sickening waves. As he hit the jungle floor, rage poured into me...For the first time in my life I really wanted to kill someone...My guts ached as I flew over the

burning aircraft...As we cruised back to the ship, I was
alone in thoughts. Our first day and all hell had let
loose...How many more aircraft would I see go down?
Would I get used to it (2:14)?

So while the typical modern USAF fighter pilot is older,
better educated, and has more training than his predecessors as
he enters combat, he will be doing the same types of missions
that fighter pilots have been doing for fifty years. He will,
however, be doing them in a much more demanding environment
characterized by technologically advanced weapon systems.
However, the terrorizing experiences and horrors characteristic
of any war will remain. "Whether [he] lives or dies...depends
upon personal prowess to a degree which may be unique in modern
warfare. Such a man must have supreme confidence in his
skills..." (25:3). It's important for the squadron commander to
understand that the demands placed upon his pilots, the fatiguing
effects, can undermine that self-confidence and the pilots'
resulting abilities to perform their missions.

AT THE AIRBASE

When considering the potential for combat fatigue among
modern fighter pilots one must also assess the airfield
environment. In past wars, the American pilot generally returned
to a haven relatively safe from the confusion and horrors of war.
There he could try to rest, get proper nourishment and exercise,
and obtain health care. This sanctuary can no longer be
guaranteed in modern warfare. There will be cases where our
airbases are within range of enemy aircraft and missiles. This
is particularly the situation in Europe where the Soviets see the
airbase as a valuable target to reduce the USAF sortie production
capability (10:34).

Despite the active and passive measures the US and NATO have
taken in recent years to protect airbases, the realist must
recognize that airbases will suffer casualties, sometimes heavy
casualties (10:39-40). As he attempts to rest or prepare to
launch on a mission, the pilot will be faced with the horrors
witnessed by ground combatants. The pilot may have thoughts
similar to those of a Union officer in the Civil War, "But the
sights and horrors began to be fearful: stretchers were plying
rapidly now, and bringing out men all limp and bloody, men with
loosely hanging arms came by, and men with wounded legs...Oh!
Why can't we fight without seeing all this?" (24:15)

In addition to the carnage, there will be obvious confusion
and stress experienced among the airbase personnel. The crew
chiefs trying to launch aircraft, the weapons loaders, the
refuelers, the security police, the fire department, the medical
personnel, all will be affected. A major factor on how they

react or are affected will be their training, mental preparation, discipline, cohesion, and leadership. All will impact the airbase environment in which the pilot tries to rest or get airborne. The following are the recollections by the acting chief of maintenance for the 3rd Tactical Fighter Wing at Bein Hoa Air Base, Republic of South Vietnam, of the events on the flightline the night of the TET Offensive in January, 1968.

> The attack came at about 2 A.M....The 120mm [rockets were]... landing among the airplanes and scattering fragments among the hooches. Great fires were raging and the firefighters were unable to put them out. People were standing around staring and were too afraid to act...Dawn finally came...[but the] situation was still not stabilized...In the midst of all this, we were trying to put out fires and get people organized. But the word coming down was very diffused. The lack of clear command and control lines took its toll...[they were] not getting the word down to us...Through it all, there was rampant confusion...It's hard but important to keep busy in the aftermath of one of these things. Some were scared; some were totally out of their minds; others were enjoying it...The point is that there is a lot of confusion in the aftermath of an attack. If people are not mentally prepared to think about it--and we were not--they are going to lose an awfully lot of control. Fear drives people to do very irrational things as everyone worries about the latest rumor, keeps tabs on who has been hurt, and tries to figure out what to do based on incomplete information...(17:22).

An attack against an airbase today could result in similar confusion, especially if the base lacks adequate training for its personnel and effective command and control links. One new complication, however, is the threat of chemical or biological weapons. The fear of such weapons can be devastating. In WW I, the French and English found that for every one person who'd actually been exposed to gas, two other men falsely believed they'd been gassed (24:8). The protective equipment itself is physically demanding, particularly in warm weather as it's easy to become dehydrated. A related point is that people lose their sense of identity in chemical gear. Ground crews all look the same and aircrews all look alike. The reduced vision, identification, and increased communication problems are factors that degrade morale and cohesion (33:24). The ability to administer first aid while in protective gear is also a major concern. These physical and emotional strains can result in disorientation and confusion, increased sense of social isolation, frustration, and fatigue resulting in a person's tendency to withdraw into himself and away from the unit and its mission (24:9).

One other significant complication will be the dependent families who are living at the base or in the local community. Until arrangements are made to guarantee their safety, the pilots and support personnel will worry and be distracted from the performance of their primary mission (17:26).

The airbase can no longer be considered a safe haven. As the pilot waits to fly his next mission, it will not be possible to shield him from the confusion and horrors of an attack. He will be part of it. In fact, if he's on the flightline, as an officer, he needs to be ready to reassure the mission support personnel and convince them that "...failure to do their work under the conditions of noise, smoke, confusion, death and destruction...will result in defeat" (25:25). Demands of the ground environment will compound those of aerial combat to fatigue the pilot and increase the stresses which can erode his ability to effectively perform his mission.

The modern combat environment, both in the air and at the airbase, will challenge the pilot's will and stamina to resist the adverse effects of combat stress on his mission performance. The squadron commander can take positive steps to combat that stress and delay or reduce its effect on his pilots.

Chapter Five

COMBATTING COMBAT STRESS

In dealing with combat stress among pilots, the emphasis
needs to be placed on prevention rather than on treatment. Lord
Moran observed in WW II that it was better to spend efforts
"...raising the pilot's resistance to fear than to come to his
rescue after the event" (4:80). This chapter investigates the
preventive concepts of leadership, training, cohesion, fear
management, recognition, tour length, rest, and the role of the
flight surgeon. Given that there will be times when the squadron
commander's preventive efforts fail, the final section also
addresses short-term treatment and administrative action.

LEADERSHIP

The leadership in the squadron has a direct impact on the
mental strength and endurance of the fliers. In 1945 Moran
observed, "The resolution of a pilot rests on a multitude of
small supports; each is kept in place by the sound instinct of
his squadron leader" (4:108). A review of the literature
indicates the key leadership tasks to prevent combat stress boil
down to two areas. The leader needs to gain the confidence and
trust of his men, and he must also instill self-confidence among
them (7:530; 28:58; 33:35,61; 6:57).

The trust and confidence in a commander are rooted in his
men's perception of his professional competence and in the
personal example he sets. Subordinates will evaluate his
competence as he prepares and plans for operations. They'll note
if he's taking into consideration the strengths and weaknesses of
the unit (7:530). Successful operations themselves are another
obvious gauge of competence. Colonel "Bud" Mahurin, Flight
Leader for the 63rd Fighter Squadron, commented about operations
in WW II, "...this is not a game...this is death. A leader has
to have something inside him that makes him forget death and
remember victory" (31:27). While combat often requires that the
health and lives of some be jeopardized for the good of a larger
number of people and the mission, his men will watch to see if
he's avoiding unreasonable risks with their lives, for "...the
experienced man knows how to accomplish objectives with a minimum
of risk" (6:57; 28:58). In addition to his professional
expertise, the example he sets also can earn confidence that will

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reduce the stress level among his pilots. "He has to have character that is recognizable on the surface. He has to put personal traits aside in favor of the broader whole" (31:27). He will add credibility if he stays firmly in touch with the consequences of what he's asking his men to do. Col Basel recalled,

> Larry Picket sat down with us. The room quieted. Larry was the Vice Commander of the wing. Incredible man. Grey haired, dignified, in charge of life and death--should have been in a cushy executive office, air conditioned and chauffeured; but he was still flying a single seat fighter into the fray, right along with [us] (1:73-74).

This is reinforced by an observation made about the RAF in WW II. The pilots needed to see their leaders fly combat missions. The leader who seldom flew set a bad example, and the spirits of the squadron fell (4:105).

It's also vitally important that his fliers are confident in themselves. This involves individual confidence to do one's own job, confidence in the other members of the unit, confidence in one's equipment, and identification with the combat effort (33:35; 24:6; 25:28; 4:105; 28:56).

The first of these, individual self-confidence to do the job, is rooted in the training provided the pilots. The subject of training will be covered in more detail later in this paper, but for now, an observation by the Navy's Cunningham portrays how key realistic training can be to self-confidence.

> And I can honestly say, though we may have been outnumbered, our intense air combat training had instilled confidence in us. My Navy training is the reason I'm alive today, and I thank the Navy officials who had enough foresight to offer us an energetic tactical flight program (2:96).

The second aspect, confidence that his fellow fliers are proficient and can be counted on to perform their duties, is a significant factor in countering fear. For example, knowledge that enemy air defenses are consistently suppressed prior to popping up to locate and attack a target is a big morale booster, as is confidence that a wingman will provide good visual look-out and mutual support against enemy aircraft. A related point here is discipline among the pilots. In WW II, Army combat units with better discipline and leadership had fewer psychological casualties than units with less discipline (24:6). Colonel "Hub" Zemke, commander of the 56th Fighter Group in WW II wrote, "Combat is combat wherever encountered...For the most part, [the] combat leadership isn't developed on the Golf Course or at the

Friday evening 'Happy Hour' at the Officers Club [sic]...I insisted on military discipline at all times" (31:35). Demonstrated proficiency and discipline can add to one's confidence in fellow pilots.

The third consideration is enhancing the pilot's confidence in his equipment. In WW II, the RAF commanders identified two critical aspects which kept up their pilots' "resolve": good leadership and confidence in their equipment. "These pilots reach out instinctively to things that increase their chances of survival" (4:105). Each wants to know that his aircraft, its systems, and weapons are the best available. Col Basel felt this confidence which his F-105 gave him, "As I strapped into the monster, I began to feel better. It was just too good an airplane, too tough and well built to ever let you down...I felt snug and safe, securely strapped in this cocoon of iron" (1:80).

Finally, the pilot's identification with the cause, that is, understanding his role and value of his sacrifices in the overall combat effort, can be a powerful motivator. This involves discussing the operational aims and importance of the pilot's successful performance of his missions (30:20-21). The emphasis should be on "...the value of thinking that a better world will follow when the war is won" (28:56).

An appropriate summary of the role of leadership in combatting combat stress is a statement by Major General Perry M. Smith, former Commandant of the National War College, who wrote that if combatants "...think they have a real chance to succeed, if they trust and respect their leaders, if they have a feeling of individual invulnerability, if they believe the enemy will die, not them, they are more likely to be victorious" (6:57).

TRAINING

Training has been rated along with leadership as the two most important factors in preserving the stress endurance of soldiers in combat and in enhancing combat effectiveness (33:37,60). AFM 1-1 highlights the importance realism should play in that training.

> To ensure the readiness of our forces, commanders must develop and implement training programs that build required warfighting skills and that simulate, as closely as possible, the combat environment in which we expect to fight. This means training in simulated combat situations that impose operational realities... (23:4-7).

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It's, therefore, wise for the squadron commander to push for
realistic training of his aircrews in the environment they will
operate. As observed earlier, there are two basic environments:
in the air during his mission and on the ground at the airbase.

IN THE AIR

In order to adequately prepare for the air environment,
pilots must be realistically trained to perform the operational
missions they'll face in combat. For example, if the primary
mission is to fly at night, are crews spending the proper
proportion of their time doing that? Is every effort being made
to get realistic training rather than merely flying to get flying
time? Are crews realistically thinking about the difficulty of
locating and bombing a target they've never seen before, or is
excessive time spent going to some familiar range? Are the
pilots well versed in the threats and electronic warfare, and do
they routinely practice threat reactions? Do the pilots spend
enough time training in their chemical gear so they are prepared
to effectively perform their missions in it? Are the pilots
trained in what to expect and how to survive post-ejection
evasion and escape? Is the simulator being used to augment
training where peacetime restrictions prohibit realism? Are
peacetime restrictions evaluated and, where necessary, challenged
in the interest of increasing the realities of combat in the
training environment?

Cunningham commented on the value which one revolutionary
program, Navy Fighter Weapons School, had on the Navy's
kill-to-loss ratio in Vietnam (2:133-135). He recalled that in
1965-68, the respective kill-to-loss rates in Vietnam for the
Navy and Air Force were 2.42 to 1 and 2.25 to 1 respectively. A
1968 Navy report concluded that the Navy fighter pilots were not
receiving realistic training in the "classic maneuvering battle."
In 1968 the Navy compensated by establishing its fighter weapon
school on the West Coast, and the following year provided an
aggressor aircraft squadron on the East Coast. The increase in
combat performance speaks for the value of the training program.
In 1972, the Navy's kill-to-loss rate was 12.0 to 1, while the
Air Force rate dropped to 1.88 to 1. The author of the Navy
report made a sobering observation, "In the past, we may have
concentrated too extensively on improving the machine without
spending enough time on the man who flies the aircraft" (2:134).

These are but some of the considerations a squadron commander
needs to ask himself about the realism of the airborne training
his pilots receive. Realism will increase pilot performance and
self-confidence for combat and simultaneously reduce his
apprehension about the situations he will face. The net effect
will be increased resistance against combat stress.

AT THE AIRBASE

As was mentioned earlier, the fighter pilot in modern warfare will most likely operate from an airbase which is no longer a sanctuary and will experience the horror and confusion of battle. Effective and realistic training will better prepare the pilots for the environment. Training will also help to decrease the confusion among the base support personnel by increasing their understanding of the likely realities and how to compensate for them. The squadron commander has direct control over the training of his aircrews, but can also make recommendations as to the training of other personnel on the base. The goal should be to reduce the confusion, and to delay the adverse impact of combat stress among base personnel in order to maintain effective airbase operations.

It's important to get the personnel motivated for the training. Fear can be used as a motivator, as it's beneficial to get personnel to visualize the combat situation in which the training will be used, the"...real picture of the dangers of battle" (28:14). It's sobering to note the Russians stress the training environment should make obvious the noise, confusion, and horror of battle.

> Preparing the soldier for the horrors of the battlefield,
> the sight of death, the effect of fear on his own body,
> and particularly the noise, is seen by the Russians as
> being an essential part of psychological hardening.
> Without a real effort to prepare the man for what he will
> experience, Soviet authors insist, the shock of battle
> will make the soldier not wish to go on (12:77).

While it's impossible to expose personnel to all the realities of war, it's important to be as realistic as possible to reduce the uncertainty and unfamiliarity where "...fear could lead to panic and defeat" (22:49).

The problems of operating in protective clothing are key contributors to stress in combat. This is due not only to the physical fatigue and dehydration but also the sense of isolation and lack of cohesion that often results. Personnel in protective gear find it difficult to identify each other. Fear of inability to treat combat wounds while using the gear also causes stress. Therefore, extensive practice in the use of the gear and what to do and expect in event of casualties can increase the airman's resistance to the effects of combat stress. In addition, frequent use of the gear and perception of its value in combat can increase the sense of responsibility among personnel for proper wear and maintenance of the gear (13:142; 24:9).

One must also consider the realism of the evaluations of training effectiveness. Evaluation exercises must consider the combat environment and examine both the easily quantifiable as well as the factors which may be tough to quantify. Reliance on statistical measures of quantifiable performance data alone may not properly motivate preparation for nor properly portray combat readiness. Subjective evaluations are often more appropriate (33:31). Peacetime exercises which omit the factors of fear and fatigue can result in unrealistic expectations being established for combat (9:87).

The time to get realistic training is now. For the squadron commander, it involves preparing his pilots to operate in both the airborne combat and airbase environments. The necessary combat stress preventive measures must take place before battle and "...is nothing more than training under the same conditions in which you expect to fight..." (11:31). Gen Smith wrote that the leader in a crisis or combat situation needs to keep requests simple, ask people to do what they've been trained to do and avoid asking them to do unfamiliar tasks (6:55). This is only possible if the people have been realistically trained in the tasks and environment which they'll likely face in a crisis or combat situation.

COHESION

Cohesion is a measure of a unit's ability to stick together and to maintain mission effectiveness in the face of the stresses of combat (33:16). It has been called "... the trust, the loyalty, the interdependence, and the mutual affection between team members..." (34:24). It is recognized as among the the most effective ways to delay the debilitating effects of combat stress (26:1), and is enhanced if the unit has a distinguished record or reputation (28:61). It is usually this cohesion, the desire not to let one's fellow crewmembers down in combat, that has more impact than any more "lofty" goals (11:30-31).

The Germans recognized the value of cohesion in WW II as the unit provided benefits and established expectations.

> The primary group provided the individual soldier with basic organic needs, affection, esteem from both peers and supervisors, and a definition of his purpose in battle. In return, the primary group expected fierce loyalty to the group and adherence to its functioning procedures" (33:17).

As a result, the Germans saw the value of fighting and replenishing as a unit. Whenever feasible, if the strength of a division was depleted below some level, the entire division would move to a rear position, replenish itself, build up cohesion, and

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then reenter battle as a cohesive unit (33:17). The air units also recognized the value of this policy. A noted Luftwaffe fighter pilot and leader, Adolf Galland, wrote that in 1940, the wing commanders along the Channel coast requested that squadrons be withdrawn one at a time to the rear for rest and replenishment. The request was granted and allowed the squadrons to return to battle "outwardly and inwardly refreshed...and in good spirits" (3:65).

While rest and replenishment as a unit may be a luxury that is not readily available to the underdog, the concept of coherence was also recognized by the Allies. The risks of becoming a combat stress casualty were lower among units with high cohesion and morale. For example, in the elite airborne units of WW II, only 5.6 percent of their casualties were combat stress-type. This was far lower than the 20 percent average for the European theater (24:17). Col Mahurin wrote,

> What got me started was the "Gang Loyalty" aspect...This really came into play the first time I saw enemy aircraft attacking our bomber formations. All I could think of was "They are hurting our boys" and I instantly went to attack without thinking of anything else. Up to then, I had really been scared silly to go into combat, but the peer pressure kept me from quitting...When I saw the Germans for the first time, it never occurred to me to be scared, I just wanted to get even with them (31:35-37).

The effort to build unit cohesion must begin before the fighting starts and be conscientiously maintained during combat (26:13). The commander should "...take every opportunity to strengthen the 'we' atmosphere" (34:25). The emphasis should be on "...quality training, shared team experience and team member commitment to one another, and mission accomplishment" (32:8). The commander can strive to get his personnel to turn their thoughts away from their own introspection and problems and toward their comrades and efforts directed at accomplishing the mission (25:28). The idea is to pit the group and its common interest of accomplishing the mission and destruction of the enemy against the individual's "...personal instincts of self-preservation" (33:21). It requires driving home an attitude where individuals are "...motivated to fight by the expectations by his peers of him and the fear of letting 'his buddies down'" (33:61). In the process, the individual needs to perceive his self-sacrifice is expected and will be appreciated. In WW II, the effective soldier would live and die for his peers. "His motivation continued because his suffering and possible death [had] the greatest meaning to his friends in his combat unit. Anything which indicated indifference to the war [was] interpreted as to be indifference to his sacrifice" (33:38). Finally, in building unit cohesion, the commander should recognize the value of extending its influence to other units

which play a key role in mission accomplishment. For example, as Cunningham walked down the flight deck of his carrier toward his fighter, the enlisted technicians shouted encouragement to him. He later reminisced, "What a fantastic feeling--I honestly think, in retrospect, I valued most the friendship of these men who made possible what we did in the air" (2:94).

It's worth learning cohesion lessons from the German's replacement policy in WW II (35:--). Such a policy would be more appropriate for a protracted war rather than a short, intense conflict. It would involve standing down a unit whose strength is badly depleted while it receives replacement pilots. The size of such a unit could be an entire squadron or it could be a flight. The time period would probably be short, maybe a week or two. During this period, the unit could regenerate and rejuvenate itself. The replacement pilots would train with the experienced pilots to form a cohesive team before the unit once again flies combat missions. It would also give the veterans a brief respite. While the unit would contribute little to the combat effort during this period, the resulting increased cohesion and reduced fatigue would enhance future unit effectiveness.

The ultimate goal for the commander trying to mold a cohesive unit prepared for combat might be to mold a pervasive attitude similar to that described by a US Marine in the Pacific in WW II.

> It was an act of love. Those men on the line were my family, my home. They were closer to me than I can say, closer than any friends had been or ever would be. They had never let me down and I wouldn't do it to them. I had to be with them rather than let them die, and me live with the knowledge that I might have saved them. Men, I know, do not fight for flag or country, for the Marine Corps or the glory or any other abstraction. They fight for one another (24:17).

FEAR MANAGEMENT

In 1945 Moran commented, "The first and last cause of a pilot's collapse is a persistent state of fear" (4:109). Efforts to help pilots manage their fears can pay dividends in their resistance to combat stress. Commanders need to recognize that fear "...is a normal experience in battle...[but] need not determine behavior...men should feel no shame at sensing fear within themselves" (28:12). Fear can be useful in motivating men to train and prepare for combat, while in battle it can move a man to act sensibly rather than recklessly, or to fight harder when he or his comrades are in danger. However, if too strong,

fear can result in a man losing control which in turn can have destabilizing effects on an entire unit's ability to maintain control and accomplish the mission (28:8,9,70).

Ambitious attempts to repress fear may be unwise and futile as the doubts and hesitations continue to eat away at the minds of men. It is far better to confront the dangerous situations and associated fears and then continue on to accomplish the task at hand (4:123). "The man who knows he will be afraid and tries to get ready for it makes for a better soldier" (28:38).

The commander can attempt to manage the fear of his men through preparation and frankness. That is, he must prepare them in advance for the battle and its associated confusion, and secondly, create an environment in which expression of that fear is acceptable and tolerated.

The first of these involves providing the confidence in leaders and self through training and cohesion described earlier. It's interesting to note the Soviet theory indicates that one of the most important preparations for battle which a commander can make is to attempt to harden his people by vividly and accurately describing what to expect in combat. "Shock of the unexpected may dull the brain..." (13:140), so ardent preparation before the battle will reduce the number of surprise situations which his men must deal with.

The second, encouraging the expression of fear in a nonjudgmental atmosphere has been generally regarded as therapeutic for the individual, but some experts caution in the manner in which it is done. It's worth looking at their opinions.

In his famous study on the effects of fear on men in combat, John Dollard endorsed the open expression of fear. He surveyed combat veterans and concluded,

> Fear should be brought into the open and discussed...such discussion reduces fear, helps avoid feelings of guilt at being afraid and makes the frightened man feel less of a "special case." [He] feels better knit into his group when he knows that others are afraid. He does not expect to be scorned...a battle-tested man who could stress not only that he was afraid but how he dealt with his fear and went ahead in spite of it (28:38).

However, Dollard's subjects also believed that expressions of fear and associated behavior must be repressed during the battle (28:9). They commented that frightened behavior tends to be contagious in combat. On the other hand, he noted men have less of a tendency to panic if they observe disciplined and calm

behavior around them. Ninety-four percent of Dollard's subjects said an example of calm action helped reduce their fears and act better (25:25).

Doctor Royden Marsh, also of the USAF School of Aerospace Medicine, and Dr Jones agreed fear is normal and should not be repressed but cautioned on how this should be handled in the fighter squadron. Dr Marsh noted it's important to appreciate the mentality of the modern day fighter pilot. He said that it's unrealistic and probably unwise to imagine fighter pilots sitting around telling each other how frightened each is. More realistically, he imagines a situation where the squadron commander establishes an environment where it is acceptable and encouraged for individuals to express their fear, but it would typically be in the confidence of another pilot or a supervisor. He believed fear should be looked at as normal and nothing to be ashamed of. However, the expectation should remain for the pilot to continue to accomplish his missions. Dr Jones agreed that "I'm afraid sessions" (38:--) among pilots before a mission are unwise. Similar to Dr Marsh's reaction, he felt the squadron commander should create an environment in which it's acceptable for a pilot to vent tension and express fear, but still make it clear the pilots are expected to do their part in flying missions. He mentioned a common way that combat pilots have vented tension is joking about deadly topics. Quips such as, "I got up, threw up, and now am ready to go to war" (38:--) should be tolerated and recognized as attempts by the pilots to acknowledge and compensate for the normal fears of combat (37:--; 38:--).

It's important for the commander and other squadron supervisors to recognize defense mechanisms and their importance. The mechanism may be in the form of denial, a sense of invulnerability because of a pilot's belief that his airplane will protect him. It could be strong identification with some individual in the squadron. It might be "sublimation" where the pilot attempts to put his fear aside for some greater good, such as freedom and democracy over totalitarianism and communism. It could be "altruism" where, because of strong unit cohesion, the pilot puts fear aside and does his part for the good of his group of fliers. There could be other types , but regardless, some types are less vulnerable to the devastations of reality than others. For example, the pilot who puts fear aside because of the common good of his fellow fliers is probably less likely to be devastated and stripped of his defense against fear compared to the pilot whose defense is anchored to his flight lead who is subsequently shot down. Dr Jones cautioned, however, that while one type of defense mechanism may be more desirable than others, the squadron supervisors must think twice about doing anything that will strip away a pilot's defense mechanism(s) which is working. It's working if it effectively shields him from the devastating effects of fear and permits him to continue to

perform his mission (38:--).   So while it   may be worthwhile to
try get him to adopt   a mechanism which is more robust to   the
realities of combat, such as   group cohesion, the commander   must
avoid leaving his pilots "defenseless" in the face of combat's
fear.

While "I'm afraid" sessions are unwise, postmission debriefs
and get-togethers are good opportunities   to vent tensions as
pilots congregate and   discuss the aspects of   a mission. These
"...activities in moderation have a cathartic and mutually
supportive role for the squadron and are of real value in the
world of the flier" (25:13). A caution here, however, is pilots
should avoid excessive use of alcohol at these meetings.
Dr Jones remarked the primary reason for moderation is that
excessive use of alcohol destroys much of the restorative value
of rest as sleep may come quickly but is usually of poor quality.
Occasional parties and moderate drinking are alright, but nightly
bashes are   unwise (38:--).   As far back as WW II, Moran had
similar thoughts. He said that it was good to bring fliers out
of isolation into a close knit atmosphere, but excessive drinking
could chip away at the pilot's sense of control (4:110).

One other method for attempting to manage fear is by staying
mentally busy.   Dollard wrote that learning to keep busy and
focus attention on the job at hand is essential.   This could be
concentration on each step of a procedure or concentration on how
to best set a good example for others (28:44). Col Grinker and
Maj Spiegel also found that in WW II, the crew members who had
more to do in combat were less likely to suffer signs of combat
stress. They found that the fighter pilot was very busy and
therefore less susceptible to incapacitating fear in the course
of a mission than other aviators (30:9). While today's fighter
pilot will be plenty busy in the air, that will often not be the
case when he's back at the airbase and must stand back and watch
others prepare his aircraft for launch.   If the airbase is
attacked , he may become the frustrated bystander and need to
find a way to keep his mind productively busy to help control
fear.

RECOGNITION

It's important early signs of combat stress be identified so
as to come to the aid of the man "alone in his war with terror"
(4:ix).   While the flight surgeon obviously plays a role in
identifying symptoms of stress, the squadron supervisors should
take advantage of their frequent contact with the pilots to look
for the symptoms described previously in Chapter 3. As early as
WW I, the RAF had its officers look for signs of strain

as they realized the earlier they detected problems and offered assistance, the more likely the fighter pilot would remain a contributing member of the unit (4:37).

Among the previously mentioned symptoms, the commander should pay special attention to identifying fatigue since the fatigued man is especially vulnerable to the "...ill effects of rumors, panic and discouragement" (33:35). The commander should also insure his own squadron supervisors are aware of the symptoms to look for. Another idea is to institute a buddy system where pilots are responsible for looking for signs of combat fatigue in each other. The emphasis is placed on "...recognition, discussion, and resolution..." (11:30) of the problem through cohesion and interresponsibility. Regardless of who looks for the symptoms, it's critical to identify them early, as once panic sets in, it's too late (28:36).

TOUR LENGTH

The policy of establishing a finite tour length in terms of combat hours, missions, months etc., is an "all important factor" (16:530). Moran concurred and called the policy "...a source of hope and therefore of strength to the average pilot, and must stretch out his life as a flying man...The alternative is to let a man go on flying until he breaks..." (4:80). Col Basel reflected on the importance of such a policy in Vietnam in 1967,

> We were all there for the big prize, 100 missions. Once the goal was reached we could sew on the coveted red white and blue patch and go home with honor. He who wore it was immune, homeward bound. He would live. He was honored by those of us who still bore the stigma of death (1:114).

Dr Jones endorsed the concept of a combat tour length and remarked it is "institutional recognition" that eventually combat stress will debilitate any pilot (38:--). He felt such a policy is a critical factor in resistance to combat fatigue and the resulting number of operational missions flown. He noted, for example, that in WW II, 12th Air Force set a number of missions based on projected attrition rates. The number of missions was picked so as to provide the pilot a sixty to eighty percent chance of completing his tour (25:10,11).

While the concept of a combat tour appears to be a good approach to attack the problem of combat stress, the squadron commander may have limited voice in the decision as to how long a combat tour ought to be. However, he could establish goals within the squadron which offer some respite, such as R & R (rest and recuperation) time after a certain number of missions (30:20). Regardless, it's important to recognize a point

Dr Jones made, that combat tours of predetermined duration are a "privilege" of the side that is winning. The losing side must do whatever is necessary to avoid defeat (38:--).

REST

Since fatigue is such an important factor in combat stress, one of the most important actions the commander can do is provide as much rest as possible for his crews. Related to this is that he look for early symptoms of fatigue and attempt to compensate. Moran alluded to the value of sleep when he wrote, "An experienced station-commander knows that eight hours of sleep are worth a glut of talk...It is part of his faith that as long as a man sleeps, he will not break" (4:109). Some believe four hours is the minimum amount of sleep a person should get in a night, and acceptable performance could be continued for several weeks with four hours per night (21:19).

The commander must also recognize crew rest time will not necessarily equate to amount of adequate sleep. Fear and anxiety can keep the pilot from getting to sleep and nightmares can rouse him out of sleep (25:6). Colonel Robert J. Ursano, of the USAF School of Aerospace Medicine, wrote that hypnosis and antipsychotic drugs are of little use. He also said barbituates are unwise as they are disabling and, again, of little practical effect. He did believe, however, that short acting sedatives could be useful (24:7). Sedation was considered a worthwhile solution by Col Grinker and Maj Spiegel in '45. "The aim is merely to relieve the [mind] from the acute anxiety produced by the recent [shock] until it becomes strong enough to digest the experience" (30:21). Dr Jones noted the RAF used Temazepam to help aircrews sleep during the war in the Falklands. "The decision to use temazepam...was based upon British recognition of demanding operational workloads, the need for extension of permissible flying hours, and the potential for these conditions to continue for several weeks" (25:9). Dr Jones described the drug as "...a short-acting benzodiazepine most active 20-40 [minutes] after oral administration, with peak effect in 2-3 hrs..." (25:9). The British were very satisfied with the drug given its effects were of limited duration, it provided adequate rest, and it produced no type of hangover effect. Eventually, crews were permitted to fly within 6 hours of using the drug (25:9).

Dr Jones also mentioned a concept called a "raincheck policy" which he saw used in Southeast Asia to help compensate for fatigue. The basic premise was that the squadron commander trusts the pilot to be the best judge of when fatigue has rendered him marginally effective to fly on a given day. If the pilot felt unfit and needed a day's rest, he could take his name off the schedule with no questions asked. Obviously, the

individual who overused this privilege and showed an unwillingness to fly his share of the missions was attended to by squadron supervisors or the flight surgeon. Dr Jones felt this raincheck policy was an option through which "...morale may be enhanced and combat fatigue delayed" (25:10).

Greater crew ratios early in combat could permit the luxury of initiating practices such as a raincheck policy to provide needed rest to fatigued pilots. It is worth the squadron commander's time to speak out for greater crew ratios in combat as peacetime crew ratios fail to recognize the consequences of combat stress and benefits of preventive measures (35:--). It would be a positive step to have more pilots available at the outset to reduce aircraft losses involving slowed pilot reactions due to fatigue or distraction due to stress.

Fatigue is a key element in degradation of the pilots' resistance to combat stress. The commander, therefore, needs to pay special attention to the quantity and quality of the rest the pilots get. When fatigue appears to be particularly bad for a pilot and if scheduling permits, one or two days off to rest, perhaps augmented by medication from the flight surgeon, should be considered as a preventive measure against combat stress.

FLIGHT SURGEON'S ROLE

Commanders often need special advice as they attempt to minimize the effects of combat stress on the unit (26:10). The primary individual to provide that assistance is the flight surgeon in his role of "...maintaining the operational strength of the squadron" (25:7). Dr Jones noted the flight surgeon should be present to assist the squadron in the more traditional role as day-to-day provider of primary care for colds etc., but should also advise the squadron commander on prevention and identification of combat stress (25:7,11,12). It's important an atmosphere of confidence, a "permissive alliance," be established between the squadron commander and the flight surgeon. The aim of this alliance should be to prolong the mission effectiveness of each pilot by delaying the debilitating effects of combat stress (38:--).

It would seem wise, before combat, for the squadron commander to evaluate the flight surgeon's background and abilities to assist with the problem of combat fatigue. Dr Jone's remarks can be used as a guide. He wrote that the flight surgeon should have an understanding of combat stress and recognize that combat fatigue is inevitable as a normal reaction to the abnormal situation of combat. He should appreciate the critical value of rest as a restorative and should also be able to provide a sympathetic and understanding ear. However, the flight surgeon must always send the signal to pilots that he expects

"...dedication, perseverance, and willingness to continue the mission" (25:13). Dr Jones emphasized the flight surgeon must evaluate pilots in light of the combat environment, both in the priority given to getting the pilots airborne to perform the mission (versus the "safety-first" mentality of peacetime) and in analyzing pilot symptoms. The symptoms in combat may be autonomic nervous system reactions to fear rather than than some illness such as a thyroid problem. In general, the flight surgeon should not ground a pilot for symptoms which appear to be purely a reaction to fear. Rather, the flight surgeon should tell the pilot in an understanding fashion that the symptoms are normal reactions to fear and that he expects the pilot to continue to fly and get the job done (38:--; 25:12-22).

In addition to the understanding of combat stress and its symptoms, the flight surgeon also needs to have credibility in the eyes of the squadron pilots. He should understand the unit's mission and fly as frequently as possible to understand the environment in which the pilots are operating. However, Dr Jones cautioned that the flight surgeon should not overidentify with the squadron as it may cloud his medical ethics and professional thinking. He must use these ethics and clear medical thinking "...to support the flying mission by helping each flier to fly as long and as effectively as possible" (25:12,13).

Finally, it seems wise for the squadron commander and flight surgeon to agree on limits of confidentiality which the flight surgeon can extend to crews. While it's more likely for pilots to come and talk with the flight surgeon if there is some element of confidentiality, the flight surgeon must recognize and make it clear to the pilots that in a combat environment, personal problems or situations which could result in death or defeat should not be covered over or hidden to "protect feelings and careers" (38:--).

TREATMENT & ADMINISTRATIVE ACTION

In the course of combat, despite the preventive measures which the squadron commander and flight surgeon take, there will likely be the occasional pilot whose combat stress becomes intolerable (38:--). At this point, the next move the squadron commander can take is to send the pilot to the base combat stress facility for a brief treatment period (37:--). If this fails to correct the problem, the flight surgeon must decide whether or not to ground the pilot and, if the pilot is not grounded, send the pilot back to the squadron commander for possible administrative action (38:--). The process is straightforward and based on principles learned in previous combat, but can involve difficult decisions for the squadron commander and flight surgeon.

The base treatment center, the combat stress facility, is an innovation at Air Force bases. Dr Marsh said that while the facility will be manned by mental health professionals, it will probably not be located in the base hospital, and it definitely will not be a hospital-type environment. A military atmosphere will prevail. Combat stress sufferers will wear their uniforms rather than hospital gowns and will be assigned duties to perform in the facility. The emphasis will be on expectancy of return to one's operational unit after a few days rest and nourishment (37:--). It appears the treatment will stress lessons learned since WW I and can best be characterized by the acronym "BICEP." BICEP stands for Brevity (one to three days), Immediacy (treatment as soon as the combat stress becomes debilitating), Centrality (consistent policy and in a single location), Expectancy (fundamental premise that the person will return to duty), and Proximity (maintenance of cohesive spirit by location near the person's operational unit) (25:33). Dr Marsh mentioned that it is beneficial if the squadron maintains personal contact with a pilot during his stay in the facility as this reinforces the cohesion and expectancy aspects (37:--).

If, after a few days in the facility, the pilot is still unable to fly, the flight surgeon needs to make a final assessment as to whether the pilot is suffering symptoms purely due to combat stress, or whether there is some physical ailment or psychological disease. If it is purely a combat stress reaction, the flight surgeon should return the pilot to the squadron commander and explain that the man is not medically grounded. If the pilot refuses to fly at that point, the commander's options are administrative rather than medical (38:--).

The administrative actions vary. Some include curtailment of the combat tour, courtmartial, or convenement of a Flight Evaluation Board (FEB) to remove the pilot's wings and subsequent assignment to ground support duties. Dr Jones emphasized the critical consideration in the administrative decision is the likely impact on the morale of the squadron. It must not appear that the pilot is being rewarded for his failure to fly. Dr Jones noted that a key point is whether or not the pilot has yet "paid his dues" in combat. If he has been flying actively and performing his mission effectively, shared the load with everyone else for a long period--and the squadron recognizes it--it may be appropriate to merely curtail his combat flying. On the other hand, the pilot who hasn't yet shouldered much of combat load should probably receive harsher treatment. For example, Dr Jones recalled a young lieutenant in Vietnam who found the fear intolerable after only a few weeks in combat. His commander took away his wings via an FEB and made him the base sandbag officer

for the remainder of his tour (38:--). The bottom line is the likely impact of the action on squadron morale is most important, while concern as to the impact on the career or reputation of the pilot involved is secondary.

Chapter Six

CONCLUSION

Combat stress is not a subject frequently talked about in fighter squadrons, nor for that matter, in the Air Force. This is unfortunate. As the squadron commander prepares his pilots for combat and evaluates their readiness, combat stress is a subject he should consider. It will occur in modern combat as it has since men first started throwing rocks at each other. The battle will be demanding and often frightening. The cockpit workload and the pilot's successes will protect and insulate him in some ways, but he will also witness failures and death. At his airbase, he stands to face great danger, confusion and frustration when the airbase is attacked. The result of these two environments will be stressful, combat stress, which will threaten his confidence and performance in battle.

The squadron commander can take preventive actions before and during combat to reduce the likelihood that the level of combat stress becomes debilitating. The commander's leadership effectiveness, the realism of squadron training, and the cohesion of the squadron members are probably the most critical avenues to concentrate on. Others include attention to fear management and plans to deal with fatigue. Before combat, the commander should develop a close relationship and mutual understanding with the flight surgeon. Their common goal in combat should be to keep each pilot effectively performing the mission as long as possible.

Despite the preventive actions, there will be pilots who can no longer perform because of combat stress. For these, the Air Force's introduction of short term treatment at the base-level combat stress facility may prove beneficial. If prevention and treatment fail, the commander needs to deal with the pilot administratively. In such a case, the morale and welfare of the squadron weighs far more heavily than the personal career and interests of the individual pilot.

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